

DIRECT TESTIMONY OF
E. ELIZABETH BEST
ON BEHALF OF
DOMINION ENERGY SOUTH CAROLINA, INC.
DOCKET NO. 2023-9-E

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is E. Elizabeth (“Betty”) Best and my business address is 400
3 Otarre Parkway, Cayce, South Carolina, 29033.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by Dominion Energy Services, Inc. (“Dominion Energy”) as
6 Director of Strategic Planning for Dominion Energy South Carolina, Inc. (“DESC”
7 or the “Company”).

8 **Q. PLEASE DESCRIBE YOUR DUTIES RELATED TO RESOURCE**
9 **PLANNING IN YOUR CURRENT POSITION.**

10 A. In my current role as Director of Strategic Planning, I am responsible for
11 producing DESC’s forecast of energy, peak demand, and revenue. I also manage
12 the Company’s load research program and optimization of its generation fleet
13 operations to provide reliable, least-cost energy to DESC customers. Finally, I also
14 oversee the Company’s generation planning, which includes managing the
15 development of the Integrated Resource Plan (“IRP”).

1 **Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
2 **PROFESSIONAL EXPERIENCE.**

3 A. I am a graduate of Clemson University with a Bachelor of Science
4 Degree in Financial Management. I also hold a Master of Business Administration
5 from the University of South Carolina. Since 1991, I have been a Certified Public
6 Accountant in South Carolina.

7 I joined SCANA Corporation in 2002 as a Financial Planning Manager, and
8 I have held various leadership roles. From 2006-2010, I served as Director of
9 Financial Planning & Investor Relations; from 2010-2013, I served as Assistant
10 Treasurer; from 2013-2015, I served as the Director of Corporate Security &
11 Claims; from 2015-2017, I served as the Director of Nuclear Financial
12 Administration; and since 2017, I have served in my current role, as Director of
13 Strategic Planning for DESC.

14 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC SERVICE**
15 **COMMISSION OF SOUTH CAROLINA (“COMMISSION”)?**

16 A. Yes.

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

18 A. The purpose of my testimony is to sponsor into evidence DESC’s 2023 IRP
19 (“2023 IRP”) and provide an overview concerning its goals, preparation, contents,
20 methodologies, and key conclusions. The 2023 IRP is attached to my testimony as
21 Exhibit ____ (EEB-1) and incorporated into it by reference. I also introduce the

1 testimony of the other Company witnesses who will testify to all or part of the 2023
2 IRP:

3 1. Mr. James W. Neely, P.E. is an Energy Market Strategic Advisor for
4 DESC and is responsible for modeling DESC's electric system to determine the
5 least cost resource plan, evaluate generation procurement decisions, forecast fuel
6 costs, calculate avoided costs, and evaluate changes to DESC's electric
7 generation. Mr. Neely will testify as to the modeling and modeling inputs used in
8 the 2023 IRP, and the evaluation of fourteen build plans generated through the
9 PLEXOS modeling software. He will also comment on DESC's reserve margin
10 policy as presented in the 2023 Planning Reserve Margin Study (the "Reserve
11 Margin Study") prepared by Astrapé Consulting ("Astrapé").

12 2. Mr. Andrew R. Walker is a Power Generation Strategic Advisor for
13 DESC. Mr. Walker will testify as to the generation related components of the 2023
14 IRP including the Company's current generation portfolio, the 2022 Coal Plants
15 Retirement Study, the 2022 and 2023 Transmission Impact Analysis ("TIA"), the
16 plans for retiring and replacing the coal-fired units at Wateree Station ("Wateree")
17 and Arthur M. Williams Station ("Williams"), and the status of Request for
18 Proposals ("RFPs") for resources to replace certain units that are being retired at the
19 Urquhart Station as well as the progress in replacement or retirement of combustion
20 turbine units at the Bushy Park, Parr, Hardeeville, and Coit sites.

21 3. Mr. Bradley Perricelli is the Senior Energy Market Analyst for DESC.
22 He is responsible for developing DESC's predictive models for energy, peak

1 demand, and revenue as inputs for the IRP. Mr. Perricelli will testify as to the load
2 forecast as an input to the IRP and, specifically, he will discuss the modeling of
3 electric vehicles.

4 4. Ms. Sheryl Shelton is the Manager of Demand Side
5 Management/Energy Conservation for DESC. Ms. Shelton will testify as to the
6 2023 DSM Maximum Achievable Potential Study (the “2023 DSM Potential
7 Study”) prepared by ICF and the stakeholder process involved in developing that
8 Study.

9 5. Mr. Drew Durkee is a Director of Flexible Load Management and
10 Energy Markets Analytics at ICF which is a consulting firm with a reputation
11 nationally for its expertise in formulating and implementing DSM programs. ICF
12 was the third-party provider selected in consultation with stakeholders comprising
13 the Energy Efficiency Advisory Group (“EEAG” or “Advisory Group”) for the 2023
14 DSM Potential Study. This study evaluated the technical, economic, achievable and
15 maximum achievable potential of energy efficiency (“EE”) programs in the DESC
16 service area over a fifteen-year forecast period. Mr. Durkee will testify as to the
17 2023 DSM Potential Study evaluation and conclusions.

18 6. Mr. Nick Wintermantel of Astrapé will testify as to the modeling and
19 conclusions reached in the Reserve Margin Study conducted in response to the
20 Commission’s directive in Order No. 2020-832. Astrapé is a consulting firm that is
21 widely recognized for its expertise in evaluating the reliability needs of electric
22 systems.

1 7. Mr. Scott Robinson, who is the Director of Energy, Sustainability &
2 Infrastructure Analytics at Guidehouse, will testify concerning the electric vehicle
3 adoption study (the “EV Adoption Study”) that Guidehouse conducted to evaluate
4 the expected penetration of electric vehicles in DESC’s service territory over a
5 fifteen-year period and to forecast the expected growth in customer demand as a
6 result. Guidehouse is a consulting firm widely recognized for its experience in
7 electric utility forecasting of this type.

8 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

9 A. My testimony describes the operational results for DESC during 2022 and
10 presents the key planning insights contained in the 2023 IRP particularly as they
11 concern the replacement of generation capacity currently supplied by the Wateree
12 and Williams coal-fired units. My testimony also presents the Company’s preferred
13 plan from the 2023 IRP and the Short Term Action Plan (“STAP”).

14 **Q. WHAT IS THE PURPOSE OF THIS IRP?**

15 A. This IRP is filed in compliance with S.C. Code Ann. § 58-37-40 (the “IRP
16 Statute”), Commission Order Nos. 2020-832 and 2021-429, and in satisfaction of
17 the requirement of S.C. Code of Laws Section 58-33-430 that DESC annually
18 update its load forecasts with the Commission. This IRP provides a snapshot in
19 time of the alternative generation strategies and options that DESC might pursue
20 to meet future customer demands, reduce carbon emissions, and support the
21 retirement of its existing coal units.

1 More specifically, this IRP identifies the steps that DESC must take in the
2 short to medium term to finalize plans for retiring and replacing Wateree and
3 Williams. To support longer term planning, this IRP helps identify how key policy
4 and market factors may affect DESC's future resource procurement decisions,
5 provides an opportunity for the Commission and stakeholders to review the current
6 state of generation planning at the Company, and allows the Company to respond
7 to concerns they may have.

8 DESC believes that the strategies and options evaluated in this IRP will
9 support its continued ability to provide safe, reliable, affordable, and increasingly
10 clean electricity to its South Carolina customers.

11 **Q. PLEASE DESCRIBE THE MODELING AND ANALYSIS CONTAINED IN**
12 **THIS 2023 IRP.**

13 A. In this 2023 IRP, DESC uses the PLEXOS resource optimization software to
14 analyze five Core Build Plans, five Sensitivity Cases, and four Supplemental Build
15 Plans (fourteen total build plans) to guide its future generation resource planning
16 decisions. These build plans and the analysis they support allow the Company to
17 examine a broad but reasonable range of assumptions concerning fuel costs,
18 generation technologies, carbon costs and constraints, load growth and DSM
19 forecasts. These build plans are based on inputs that define a wide spectrum of
20 reasonably foreseeable future market conditions. DESC has evaluated these build
21 plans across eight individual metrics that include all evaluation criteria required
22 by the IRP Statute or Commission orders. Based on this evaluation, DESC has

1 identified the Reference Build Plan as the preferred plan to guide its decision
2 making at this time and has identified how key changes in market conditions, load
3 growth, or policy choices by environmental regulators could change its decision
4 making in the future.

5 **Q. WHAT IS THE ROLE OF RENEWABLE RESOURCES IN THE**
6 **COMPANY'S 2023 IRP?**

7 A. Collectively, these fourteen build plans envision a significant expansion of
8 solar, battery, and other non-carbon emitting resources on DESC's system over the
9 course of the planning horizon. Two build plans identify conditions under which it
10 would be economically feasible to deploy non- emitting offshore wind ("OSW")
11 and small modular nuclear reactor ("SMR") technology to support a potentially
12 carbon constrained future. This is the first time these resources have been selected
13 in a full IRP.

14 **Q. HOW DOES THIS IRP INFORM DESC'S DECISION TO RETIRE AND**
15 **REPLACE DESC'S REMAINING COAL-ONLY GENERATION UNITS?**

16 A. This 2023 IRP presents a high-level strategy for retiring and replacing the
17 Wateree and Williams facilities by the end of 2028 and 2030, respectively,
18 recognizing that this schedule depends upon the timely completion of regulatory,
19 procurement, and construction processes and may include the possibility of building
20 high-efficiency, low-emitting natural gas-fired generation on its own or in
21 partnership with the South Carolina Public Service Authority ("Santee Cooper").

1 These retirement decisions are the most important decisions to be made based on
2 this IRP and are discussed in greater detail in the testimony of Mr. Walker.

3 **Q. HOW IS THIS IRP DIFFERENT FROM PAST IRPS AND IRP UPDATES?**

4 A. This IRP represents a significant evolution in the sophistication of the data
5 and inputs DESC uses in planning for customers' future needs. It is the first full
6 IRP to use resource optimization for selecting build plans. The IRP also
7 incorporates the results of a new probabilistic Reserve Margin Study, a new range
8 of DSM potential reductions in future demand growth including the maximum
9 achievable potential identified in the 2023 DSM Potential Study, and a new electric
10 vehicle adoption and load growth forecast provided by the EV Adoption Study—
11 all conducted by third-party consulting firms broadly recognized for their expertise
12 in these areas. Details regarding these studies are provided in the testimonies of
13 the witnesses from Astrapé, ICF and Guidehouse: Mr. Wintermantel, Mr. Durkee,
14 and Mr. Robinson, respectively.

15 **Q. WHEN WAS THE 2023 IRP PREPARED?**

16 A. The 2023 IRP was prepared beginning in the late fall of 2022 and was
17 completed in January 2023. The modeling it contains is based on conditions that
18 were known or forecasted at that time. Because of the short time between the filing
19 of the 2022 IRP Update and this 2023 IRP, it was not possible for DESC to
20 incorporate all comments that the Office of Regulatory Staff (“ORS”) and the IRP
21 Stakeholder Advisory Group (the “Stakeholders”) filed concerning the 2022 IRP
22 Update in this 2023 IRP. However, DESC has continued to meet with

representatives from ORS and Stakeholders to receive comments on the methodology and inputs used in this IRP and will continue to review and consider comments and suggestions carefully.

DESC's planning team will begin preparing the 2024 IRP Update beginning in late 2023 for filing in March 2024 based on conditions current at that time and any instructions from the Commission that emerge from this proceeding.

Q. HOW HAS THE STAKEHOLDER PROCESS INFORMED THIS IRP?

A. The IRP Stakeholder Advisory Group¹ has met eleven times since it first convened in 2020 and has provided a meaningful exchange of information and perspectives to inform the IRP process. Charles River Associates ("CRA") designed and facilitated all eleven sessions. CRA is a consulting firm with broad national experience in stakeholder processes, including the recent stakeholder process for the Urquhart RFP and the Energy Efficiency Advisory Group for DESC. DESC has filed the agendas, presentation materials, minutes, and follow-up responses to all Stakeholder sessions to date with the Commission.

¹ Stakeholder meetings are open to interested parties. The thirteen invited members of the IRP Stakeholder Advisory Group are:

- Office of Regulatory Staff
- SC Energy Office
- Coastal Conservation League
- SC Small Business Chamber of Commerce
- SC Office of Economic Opportunity
- SC Energy Users Committee
- SC Community Action Partnership
- Southern Alliance for Clean Energy
- Johnson Development Associates, Inc.
- South Carolina Solar Business Alliance
- Sierra Club
- AARP South Carolina
- Walmart, Inc.

1 In the most recent sessions, the Company and Stakeholders considered,
2 among other topics, key takeaways from the 2022 IRP Update, planning and
3 changes in modeling inputs for this 2023 IRP, the 2023 DSM Potential Study, the
4 Reserve Margin Study, the EV Adoption Study, and implications of the Inflation
5 Reduction Act of 2022 (“IRA”) on future IRPs. The Stakeholder process includes
6 a website and a dedicated email address to facilitate communication. The website
7 acts as the primary conduit for information and warehouses stakeholder materials,
8 including presentations and minutes from previous sessions. The website also
9 allows for all Stakeholders to submit questions and serves as a central location
10 where questions and answers are organized and posted. DESC makes every effort
11 to respond to requests in a timely and considerate manner both in writing and orally.
12 Many of the requests made by Stakeholders have been incorporated into this IRP.
13 DESC believes the stakeholder process has been an effective venue for
14 communication regarding the modeling and inputs for DESC’s IRPs.

15 **Q. DOES THIS IRP ACCOUNT FOR THE BENEFITS CONFERRED BY THE**
16 **IRA AND THE INFRASTRUCTURE INVESTMENT AND JOBS ACT**
17 **(“IIJA”)?**

18 **A.** Yes, tax benefits conferred by the IRA on battery and solar resources have
19 been included in the modeling inputs of this IRP. The effects of the IIJA are included
20 in the EV forecast. Other impacts are not fully known at this time and will be
21 included as more is known.

1 **Q. PLEASE SUMMARIZE THE RELEVANT IRA BENEFITS.**

2 A. The IRA, which Congress passed in August 2022, includes an estimated \$369
3 billion in climate and clean energy provisions, including grants and increased tax
4 credits for new-build renewable generation resources including solar, storage,
5 nuclear, and wind capacity which are available over a ten-year program life. The
6 Company is actively reviewing the provisions of the IRA as implementation
7 guidance is provided from the United States Treasury Department and has
8 incorporated IRA-based tax incentives into its modeling of solar and battery
9 resources. The modeling of IRA tax credits is discussed in more detail in the
10 testimony of Mr. Neely.

11 The IRA also provides a \$7,500 tax credit in 2023 for EV purchases if the
12 vehicle manufacturer and buyer qualify; this becomes an immediate credit at the
13 point of sale in 2024. The IRA also provides a 30% tax credit for charging station
14 installations (up to \$1,000 for residential installations), a \$35/kWh credit for North
15 American battery manufacturing and a \$10/kWh for North American battery
16 assembly. These will accelerate EV adoption and associated electric load and
17 economic development in DESC's territory as South Carolina emerges as a hub for
18 battery and EV vehicle manufacturing and assembly. The additional load due to
19 EV adoption has been forecasted in the Guidehouse study and incorporated in the
20 load forecasts used in modeling for this IRP.

1 **Q. PLEASE SUMMARIZE THE POTENTIAL BENEFITS UNDER THE IIJA.**

2 A. The IIJA, signed into law by President Biden on November 15, 2021,
3 provides potential grant funding opportunities, some of which are directly available
4 to utilities, and some of which are available indirectly through joint partnership
5 projects, such as electrification of school and transit buses and other governmental
6 fleets.

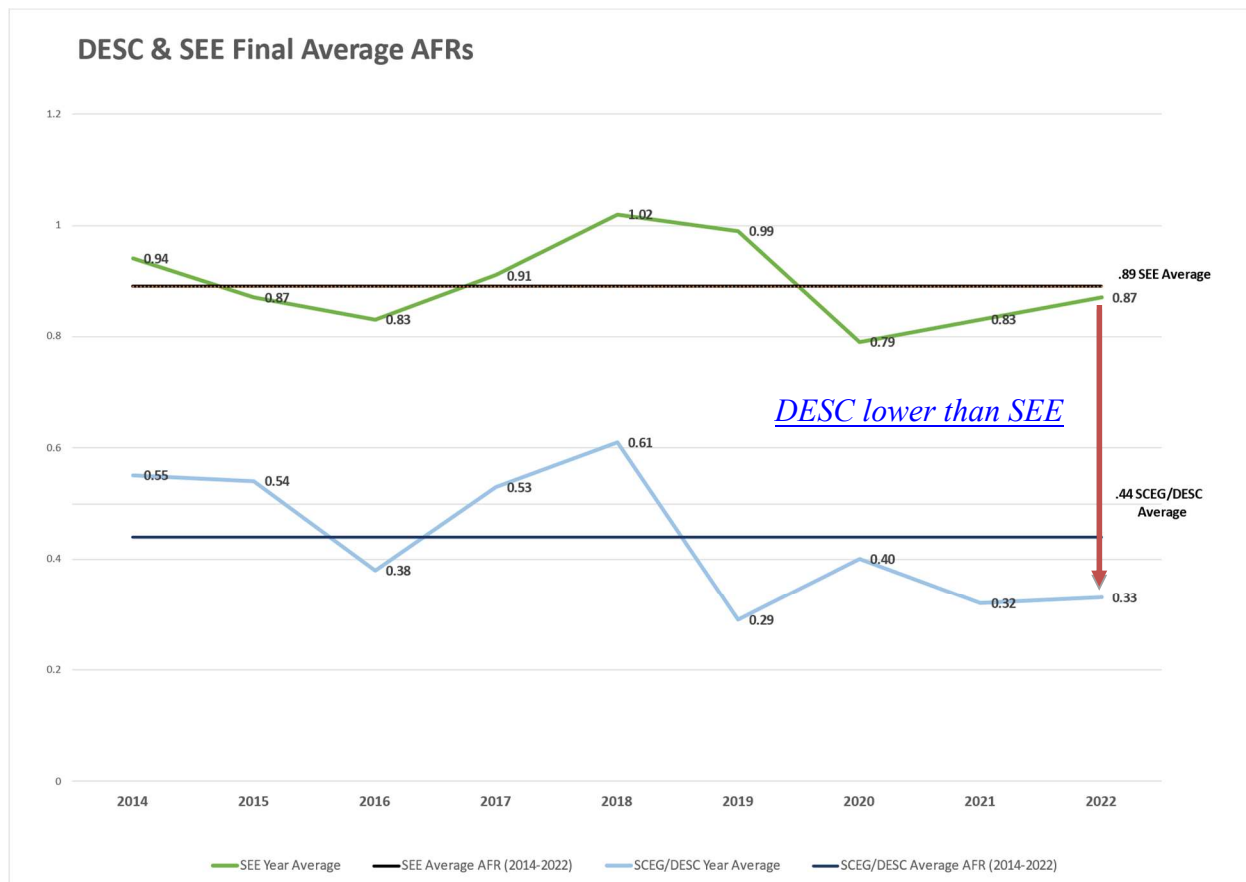
7 An example of a direct utility grant would be funding under the Grid
8 Resilience and Innovation Partnerships program, which provides grants for the
9 expansion and modernization of the nation's electric grid. This is the most relevant
10 funding opportunity to grid operators. In December 2022, DESC submitted a
11 "Concept Paper" related to funding under this program. In February 2023, the U.S.
12 Department of Energy "encouraged" the Company to submit a full grant
13 application. The Company is planning to submit a full application in early April
14 2023.

15 Much of the IIJA's funding, however, is in the form of indirect grants that
16 are available to utilities only through projects jointly undertaken with state and/or
17 local governments. DESC is in the process of identifying specific projects
18 benefiting its service area and intends to participate in as many opportunities as
19 possible that align with its operations and provide benefits to its customers.
20 DESC's pursuit of IIJA funding opportunities will continue over the programs'
21 five-year time horizon.

1 To date, no IIJA grants have been awarded to the Company and thus have
2 not been included in this IRP.

3 **Q. PLEASE DESCRIBE DESC’S COMMITMENT AND OPERATIONAL**
4 **RESULTS RELATED TO SAFETY AND RELIABILITY?**

5 A. Providing safe, reliable, affordable, and sustainable energy is the primary
6 commitment of Dominion Energy, Inc. (“Dominion Energy”) to the more than three
7 million customers it serves across its utility operations. In 2022, DESC’s safety and
8 reliability scores were exemplary. In 2022, DESC’s Accident Frequency Rate
9 (“AFR”) was more than 60% below the most recent Southeastern Electric Exchange
10 (“SEE”) averages as shown in Figure 1 below, which has been updated with recently
11 released data from calendar year 2022.

Figure 1 – DESC and SEE Historical Average AFR

In 2022, DESC reduced its system average disruption index (“SAIDI”) score by 0.49 minutes when compared to 2021 and the average customer’s cumulative minutes of outage for the year was an historically low 78.4 minutes. DESC’s SAIDI score has consistently been lower than other regional investor-owned utilities by a wide margin reflecting the value of its investment in transmission and distribution modernization and careful maintenance.

Mr. Walker will testify in more detail concerning generation matters. But I can report that in 2022, DESC returned Wateree Unit 2 to service in time for the summer peaking season as anticipated after replacing its damaged generator and that

1 the Company's other fossil steam, nuclear, combined cycle, combustion turbine, and
2 hydro generation preformed reliably and efficiently.

3 **Q. WHAT WAS DESC'S EXPERIENCE IN 2022 CONCERNING STORMS**
4 **AND WEATHER-RELATED OUTAGES?**

5 A. During 2022, two summer storms and one winter storm reached DESC's
6 service territory. The system performed well during the two summer storms, and the
7 relatively few customers who lost power were restored quickly.

8 During the period of December 23 to December 25, 2022, an extra-tropical
9 cyclone that had formed in the Northern Plains of the United States brought extreme
10 cold temperatures and high winds to DESC's service territory. The high winds
11 caused limited outages that were quickly restored. But like its neighboring utilities,
12 DESC also experienced capacity emergencies caused by high loads from the
13 extremely cold temperatures compounded by a strong wind chill. In addition, firm
14 natural gas supplies were curtailed by upstream pipelines.

15 In the early morning of December 24, 2022, DESC lost generation resources
16 at various times due to factors that in some cases were related to the weather directly
17 and in others were not. Little support was available from neighboring utilities who
18 were themselves engaged in load shedding or otherwise in an emergency posture at
19 that time. To maintain operating reserves, DESC was required to curtail firm off-
20 system sales, impose voltage limitations, and impose a brief curtailment of firm load
21 on the morning of December 24, 2022. Service to all customers was restored within
22 minutes and no further load shedding was required. DESC is reviewing the events

1 and working with regulatory groups including the North American Reliability
2 Corporation (“NERC”) to capture lessons learned.

3 **Q. DESCRIBE THE CURRENT STATUS OF DESC’S ADVANCED**
4 **METERING INFRASTRUCTURE (“AMI”) ROLL-OUT.**

5 A. By the close of 2022, DESC had installed approximately 544,525 electric
6 AMI meters or approximately 67% of the roughly 808,000 meters that it expects to
7 install. The roll out of DESC’s AMI meters will provide a direct two-way
8 connection between the Company and the customer’s meter to make it possible for
9 DESC to design, develop, and offer demand response (“DR”) programs to its
10 residential and small and medium general service customers.

11 During 2022, DESC installed 161,462 AMI meters, a number that was
12 limited as a result of supply chain constraints. Throughout 2022, DESC’s primary
13 meter vendor, Itron, operated under the force majeure event it declared in July 2021
14 due to supply chain disruptions and was not able to fulfill DESC’s forecasted meter
15 deliveries for 2022. While Itron has not provided a firm timeline for providing all
16 the required meters, Itron does notify DESC on a quarterly basis of the expected
17 shipments for that quarter. Due to these constraints, DESC’s level of meter
18 deployment has been slowed and the Company is currently targeting approximately
19 1,900 electric meter installations per week. The meter shortage and deployment
20 slowdown has extended the scheduled completion date for the AMI rollout to no
21 sooner than January 2024. DESC is continuing to work closely with Itron to gain

1 insight on any expected shipments and will increase the meter deployment rate as
2 soon as possible.

3 **Q. PLEASE DESCRIBE DESC'S OPERATING RESULTS RELATED TO**
4 **ENVIRONMENTAL CONSIDERATIONS AND TO CARBON AND**
5 **METHANE EMISSIONS REDUCTIONS.**

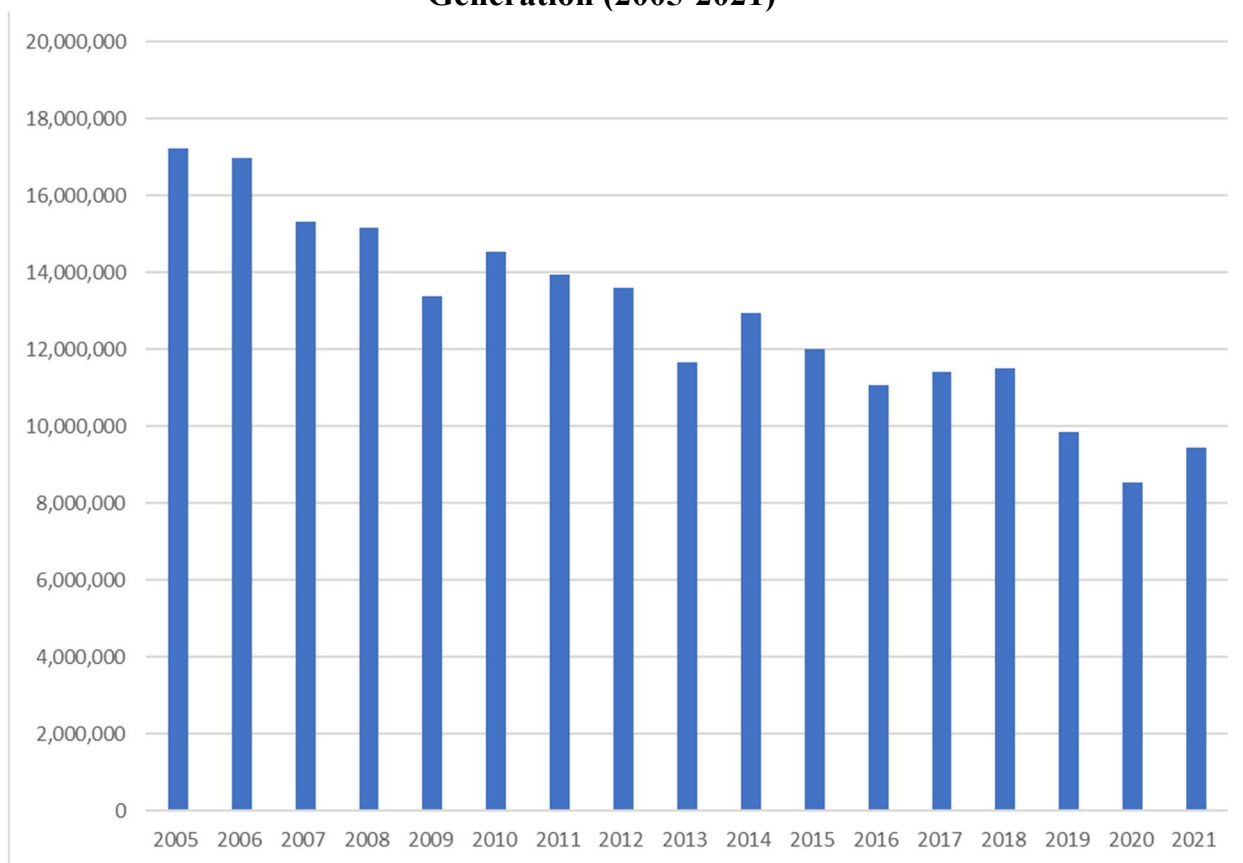
6 A. From an environmental standpoint, electric generation remains perhaps the
7 most highly regulated industry of any in the United States and DESC operates its
8 utility system in compliance with applicable environmental laws and regulations.
9 The 2023 IRP contains a detailed evaluation of how those regulations are changing
10 and how DESC is investing time and capital in responding to those changes. The
11 change in administration in Washington and recent U.S. Supreme Court rulings
12 have injected much uncertainty into the environmental regulation of utilities. DESC
13 is carefully monitoring developments concerning these matters and positioning
14 itself to meet future compliance requirements.

15 Dominion Energy's vision is to become the most sustainable energy
16 company in the country and it is committed to achieving Net Zero emissions by
17 2050. Since 2005, Dominion Energy reduced its carbon emissions across its utility
18 operations by 46% and is now among the lowest carbon emitting utilities in the
19 United States.

20 For nearly two decades, DESC has been reducing carbon emissions by
21 retiring or converting coal plants, integrating solar, and adding high-efficiency
22 natural gas fired generation while remaining focused on reliability and affordability

for its customers. Since 2000, DESC has retired or converted to natural gas eight coal units. As shown below in Figure 2, since 2005, carbon emissions from DESC's electric generation operations have fallen by approximately 45%.

Figure 2 - DESC Historical Annual CO₂ Emissions from Electric Generation (2005-2021)



Since the 2020 IRP was filed, DESC has added approximately 420 MW of solar generation to its system which will further add to carbon reductions. Solar generation represented 973 MW of installed nameplate capacity in 2022 and DESC has signed contracts to bring that total to 1,174 MW in the near future.

Q. PLEASE DESCRIBE DESC'S COMMITMENT TO RETIRING ITS REMAINING COAL FIRED GENERATING UNITS.

1 A. In keeping with Dominion Energy’s commitment to achieve Net Zero carbon
2 emissions by 2050, this 2023 IRP presents the next steps for retiring and replacing
3 Wateree and Williams. In accordance with Commission Order Nos. 2021-418 and
4 2022-305, DESC conducted a comprehensive Coal Plants Retirement Study (the
5 “Retirement Study”) that it filed in Commission Docket No. 2021-192-E in 2022.
6 The Retirement Study is the first step of many that will be required to identify and
7 procure suitable replacement resources. The Retirement Study is attached to my
8 testimony as Exhibit __ (EEB-2) and incorporated into it by reference. That study
9 will be discussed in more detail in the testimony of Mr. Walker. Based on the
10 findings of that study, DESC intends to retire Wateree by the end of 2028 and
11 Williams by the end of 2030, recognizing, however, that while this schedule is
12 supported by this IRP analysis, the Retirement Study, and additional data gathered
13 since that time, such retirements are dependent upon the timely completion of
14 regulatory, procurement, and construction processes.

15 Williams and Wateree provide dispatchable generating capacity and other
16 ancillary services to the system that are required for the Company to maintain
17 reliable service to its customers. The key operating decision for DESC is how to
18 replace that capacity. Broadly speaking, the build plans evaluated in this IRP
19 identified two possible approaches for replacing the Wateree capacity. One
20 approach centers on replacing Wateree with on the order of 400 MW of battery
21 energy storage (“Battery”) resources supported by a sizable addition of new solar
22 resources (“Solar”). The other centers on replacing Wateree with a combination of

1 natural gas capacity, in the form of a 262 MW Large Frame CT resource along with
2 100 MW of Battery storage, which would also be supported by significant quantities
3 of new Solar. The amount of Solar and Battery installed varies among the different
4 build plans, but the core replacement resources are either Battery or combustion
5 turbine resources in each case.

6 The IRP does not identify optimal siting of resources (which is itself a
7 function of land use, electric transmission costs, natural gas availability, among
8 other considerations that vary by resource). But, to minimize electric transmission
9 cost impacts, the logical location to site a Battery resource to replace the capacity
10 from Wateree is at the Wateree site. To balance electric transmission and natural
11 gas supply cost impacts, the logical place to locate new Large Frame CT resources
12 is at the Urquhart Station. The Wateree Battery and Wateree CT build plans
13 specifically modeled site-specific transmission cost estimates (as available). How
14 the IRP modeled these options are explained in greater detail in the testimony of
15 Mr. Neely.

16 **Q. WHAT ARE THE NEXT STEPS THAT THE COMPANY ENVISIONS**
17 **TAKING REGARDING REPLACEMENT OF WATEREE?**

18 A. Based on the outcome of this proceeding, DESC intends to issue an all
19 sources RFP into which a broad range of supply side technologies (including Solar,
20 Hybrid Solar, Battery, CT, and others) could be bid to assemble an optimized
21 portfolio of projects to replace Wateree. DESC intends to use the analysis from the
22 resulting bids for replacement resources as the basis for its final decision of whether

1 to retire Wateree or move forward with environmental compliance projects for the
2 U.S. Environmental Protection Agency (“EPA”) Steam Electric Effluent Limitation
3 Guidelines (“ELG”) rule to be able to operate the facility past 2028. The recent all
4 sources RFP for replacement resources to support the retirement of certain units at
5 the Urquhart site would provide a model and template for the all sources RFP to
6 support a Wateree retirement. This is discussed in more detail in the testimony of
7 Mr. Walker.

8 **Q. WHAT ARE THE NEXT STEPS THAT THE COMPANY ENVISIONS**
9 **TAKING REGARDING REPLACEMENT OF WILLIAMS?**

10 A. For the replacement of Williams, all build plans except the 85% CO₂
11 Reduction Build Plan and the 70% CO₂ Reduction Build Plan (the “Carbon
12 Constrained Build Plans”) identified the optimum replacement resource for
13 Williams as a high-efficiency, low-emitting natural gas fired combined cycle
14 (“CC”) resource of approximately 1,325 MW. This resource, as modeled in the
15 IRP, would be shared evenly with Santee Cooper (the “Shared Resource”) with
16 DESC receiving approximately 663 MW of capacity from the Shared Resource.
17 Such a resource would most logically be built at the Company’s former Canadys
18 Station site, a site that balances electric transmission resources with proximity to
19 interstate natural gas pipelines. PLEXOS chose the Shared Resource in the majority
20 of the fourteen Build Plans and, in the two Carbon Constrained Build Plans, it
21 selected a 1,325 MW CC resource to be exclusively owned by DESC as the
22 optimum replacement for Williams.

1 Building a Shared Resource could create economies of scale for all
2 participating utilities, reducing costs to their customers including the electric
3 cooperative utilities in the state. A Shared Resource could enhance efficiencies in
4 natural gas pipeline expansions. It could reduce the environmental footprint of the
5 generation facilities and natural gas pipeline projects needed to replace coal
6 generation on both the DESC and Santee Cooper systems and create a more certain
7 timetable for achieving carbon reductions on both systems. It could help anchor an
8 expansion of natural gas supplies for uses other than power generation in areas of
9 the state where economic development is currently limited by lack of such supplies.
10 As a result of the modeling in this IRP, DESC's current plan is to continue
11 negotiations with Santee Cooper concerning the Shared Resource as a potential
12 future resource addition. Future procurement decisions would depend on the result
13 of those negotiations.

14 **Q. HOW WILL DESC USE THIS IRP IN MAKING DECISIONS TO RETIRE**
15 **AND REPLACE GENERATION RESOURCES?**

16 **A.** This IRP provides a roadmap and framework of data for future decision
17 making and does not reflect any decisions by DESC to pursue any specific action
18 or project. However, DESC intends to move forward in 2023 to identify and
19 analyze specific replacement resources to support the retirement of Wateree and
20 Williams and the resulting decisions will be informed by the analysis contained in
21 this 2023 IRP and feedback from the Commission, the ORS, and other parties. This
22 approach is discussed in more detail in the testimony of Mr. Walker.

1 **Q. WHY HAS DESC CHOSEN THE REFERENCE PLAN AS THE**
2 **PREFERRED PLAN IN THE 2023 IRP?**

3 A. Based on its review of the needs of the system and the PLEXOS modeling
4 contained in this 2023 IRP, DESC has determined that the Reference Build Plan is
5 the preferred build plan to guide its planning decisions at this time. The Reference
6 Build Plan is the lowest cost option with the lowest regrets score of any plan under
7 the Reference Market Scenario which represents DESC's assessment of the likely
8 conditions to be encountered during the planning period. Under any of the three
9 most indicative market scenarios, (the "Core Market Scenarios"), the only build plan
10 that is comparable in terms of cost considerations is the Zero Carbon Cost Build
11 Plan. It only out-performs the Reference Build Plan on cost metrics under the
12 assumption that carbon emissions do not impose an assignable cost for the duration
13 of the planning period. This is not an assumption on which DESC believes it should
14 base its generation planning at this time.

15 The two Carbon Constrained build plans outperform the Reference Build
16 Plan on most measures of CO₂ emissions reductions and clean energy. But their
17 annual cost to customers are higher than the Reference Build Plan by hundreds of
18 millions of dollars on a levelized net present value basis.

1 **Q. HOW DOES THE SELECTION OF THE REFERENCE PLAN AS THE**
2 **PREFERRED PLAN IN THE 2023 IRP AFFECT THE PRIMARY**
3 **DECISIONS THAT WILL BE MADE UNDER THIS IRP?**

4 **A.** The primary decisions that DESC must make under this IRP are the decisions
5 about how to replace Wateree and Williams. As to replacing Wateree, DESC is not
6 intending to limit its consideration of alternative replacement plans based on the
7 selection of the Reference Build Plan as the preferred build plan in this IRP, but
8 plans to issue an all sources RFP for the required replacement resources. Based on
9 the response to that RFP, the results of the 2022 TIA, and other data and inputs as
10 they are known at the time, DESC will select the option and portfolio of resources
11 that optimize results for customers under the most likely market scenario.

12 As to replacing Williams, DESC intends to continue to pursue more
13 definitive study and negotiations with Santee Cooper related to the Shared
14 Resource, which will include evaluating natural gas supply options and costs and
15 electric transmission impacts and costs for a Shared Resource. Both DESC and
16 Santee Cooper will maintain the optionality to study and pursue other self-
17 developed resources as deemed necessary, but the Company's primary focus is on
18 the Shared Resource. DESC's decision as to when to retire Williams Station will
19 be made through further study and modeling with updated inputs and additional
20 information as it becomes available from this effort.

1 **Q. BRIEFLY DESCRIBE THE COMPANY’S SHORT TERM ACTION PLAN.**

2 A. In 2023, and with the support of this Commission and ORS, DESC will need
3 to make critically important decisions concerning the replacement of Wateree and
4 Williams capacity. To support that decision making, the Company will carefully
5 monitor changes affecting generation cost and needs including natural gas prices,
6 regulatory and legislative requirements regarding CO₂ emissions, the costs of
7 renewable and energy storage technologies, access to fuel supplies and delivery
8 options, governmental incentives, evolving environmental policies, and the
9 emergence of novel generating technologies. An important data point in this
10 monitoring is the recently publicly-available pricing data for generation resources
11 (including Solar, Battery, and Hybrid projects) that bid into the Urquhart RFP
12 process.

13 At the core of the STAP is the Company’s intention to monitor changing
14 market conditions and state or federal environmental laws and regulations and
15 update its planning to reflect those changes. DESC will continue to pursue regular
16 and meaningful dialogues with ORS and Stakeholders to receive comments and
17 information and to work toward achieving as great a level of consensus around these
18 matters as is possible given the divergent interests and perspectives of the parties.
19 As always, DESC’s guiding commitment is to provide safe, reliable, clean, and
20 affordable energy to its customers.

21 The specific short-term actions that the Company intends to take in 2023 involve
22 actions related to the retirement of Wateree and Williams, execution of its

1 modernization of peaking generation resources, continue working on DSM planning
2 and implementation, accomplish its AMI goals, and continue to implement its
3 Stakeholder process. These specific actions are described in more detail on pages
4 92-94 of the 2023 IRP and are incorporated herein by reference.

5 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS CONCERNING DESC'S**
6 **2023 IRP.**

7 A. DESC's 2023 IRP appropriately identifies the Reference Build Plan as the
8 preferred plan to guide DESC's generation planning for the next three years. It sets
9 out the most reasonable and prudent approach of planning for the next steps in the
10 development of DESC's generation portfolio which includes the potential for
11 adding additional Solar generation in 2026 and 2027 and for retiring and replacing
12 Wateree by December 31, 2028 and Williams by December 31, 2030.

13 DESC's fundamental objectives remain to protect safety, maintain reliability,
14 and deliver clean, affordable energy to its customers. Achieving these objectives
15 while transitioning to a Net Zero carbon future will require investment by the
16 Company, support from the Commission, and coordination and consensus-building
17 across all stakeholder groups. DESC submits that this IRP provides a sound and
18 appropriate basis for investment evaluations by the Company, regulatory decision
19 making, and public engagement.

1 **Q. ARE YOU FAMILIAR WITH THE COMMISSION'S DIRECTIVE ISSUED**
2 **ON MARCH 29, 2023 IN DOCKET NO. 2022-9-E?**

3 A. Yes. That directive was issued four business days before the filing deadline
4 for this direct prefiled testimony, and directed DESC to address in its testimony or
5 other appropriate manner the requirements of Order No. 2021-429 and comments
6 from all parties, including the eleven recommendations raised by ORS in that
7 docket.

8 **Q. HAS DESC ADDRESSED THE REQUIREMENTS OF ORDER NO. 2021-**
9 **429?**

10 A. Yes. Order No. 2021-429 is the Commission's Order approving DESC's
11 Modified 2020 IRP. That Order included several requirements applicable to DESC's
12 2021 IRP Update which was filed and accepted by the Commission in Order No.
13 2022-713. The additional requirements from Order No. 2021-429 have been
14 addressed through multiple stakeholder proceedings and CRA provides
15 stakeholders with the right and opportunity to raise any unresolved questions or
16 concerning in that process. These matters have also been discussed in the the 2021
17 and 2022 IRP Updates. The following requirements have been further addressed
18 either in the 2023 IRP or through testimony as follows:

- 19 • Adjustments to reliability factors, minimax regret and cost range
20 analyses, and plan selection criteria (*See* 2023 IRP Section: Build Plan
21 Analysis (p. 51); and Pre-Filed Direct Testimony of Mr. Neely p. 8-
22 12));

- Developing and implementing an all source procurement plan in future IRPs (*See* 2023 IRP Sections: Coal Replacement Planning (p. 25); Modeling Inputs and Assumptions (p. 43); Build Plan Analysis (p. 51); The 2023 Short Term Action Plan (p. 90); Pre-Filed Direct Testimony of Mr. Walker (p. 8-18, 20-24)).
- Employing a reasonable levelized cost of saved energy, including load forecasts and realistic and levelized DSM Costs, using marginal line loss in calculation of avoided costs and in the Market Potential Study, and using “cost-effective, reasonable and achievable” as the standard for evaluating the potential for higher savings portfolios (*See* 2023 IRP Sections: The 2023 DSM Potential Study (p. 13); 2023 IRP, Modeling Inputs and Assumptions (p. 43); Build Plan Analysis (p. 51); Pre-Filed Direct Testimony of Mr. Neely (p. 22-23; 28)).

Q. HAS DESC CONSIDERED AND ADDRESSED THE ELEVEN RECOMMENDATIONS OF ORS IN ITS COMMENTS ON THE 2022 IRP UPDATE?

A. Yes. DESC addressed the eleven specific recommendations of ORS in Response Comments filed in Docket No. 2022-9-E on January 19, 2023. A copy of those responses are attached to my testimony as Exhibit ____ (EEB-3) and incorporated into it by reference. In response to Exhibit ____ (EEB-3), ORS made two additional comments: (1) recommending that integration costs for intermittent resources including OSW be addressed through the stakeholder process, and (2)

1 recommending that DESC inform the Commission on the use of an alternative RFP
2 process for the replacement resources of Williams and Wateree in advance of
3 procuring those resources if that is its intention. DESC will continue to addresses
4 the integration costs for intermittent resources through the stakeholder process as
5 recommended by ORS and a specific response to ORS's concerns on this point is
6 found in the Pre-Filed Direct Testimony of Mr. Neely at p. 34. The current status
7 of the Company's plans for replacement resources for Williams and Wateree is
8 explained in detail in the Pre-Filed Direct Testimony of Mr. Walker at p. 21-25.

9 Concerning the comments filed by other stakeholders, DESC has considered
10 and addressed those through responses filed in Docket No. 2022-9-E on February
11 20, 2023 and will continue to address those comments through the ongoing
12 stakeholder process, which DESC believes is the best venue for addressing
13 comments from stakeholders.

14 **Q. WHAT IS DESC REQUESTING THE COMMISSION TO DO?**

15 A. DESC respectfully requests the Commission:

- 16 1. To accept its 2023 IRP as the most reasonable and prudent basis for the
17 Company's generation procurement decisions during the coming three
18 year period and complying with all statutory and other requirements for a
19 triannual IRP filing under S.C. Code Ann. § 55-37-40.
- 20 2. To affirm its support for DESC's decision to plan for the retirement of the
21 Wateree and Williams units in 2028 and 2030, if feasible, and to pursue
22 the major units of replacement generation for eventual presentation to this

1 Commission for approval under the Siting Act, or for a determination that
2 Siting Act approval is not required.

- 3 3. To affirm that DESC should proceed to solicit competitive bids to replace
4 Wateree through an all sources RFP as outlined in the testimony of Mr.
5 Walker, with the final choice between available options to be made based
6 on the cost and other data provided by those bids and an evaluation based
7 on transmission interconnection costs and other factors and inputs as
8 available at that time.

9 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

10 **A. Yes.**